

### AMENDMENT TO THE SPECIFICATION

Please replace the paragraph on page 2, lines 3-8 with the following:

Other systems attempt to enhance the speech signal using a ~~Weiner~~ Wiener filter to filter out the noise in the speech signal. In such systems, the gain of the ~~Weiner~~ Wiener filter is generally based on a signal-to-noise ratio. To arrive at the proper gain value, the level of the noise in the signal must be determined.

Please replace the paragraph on page 15, line 22 - page 16, line 10 with the following:

The smoothed spectral values for the estimate of the clean speech signal and the estimate of the noise are then used to determine the gain for a ~~Weiner~~ Wiener filter 326 at step 422. Under one embodiment, the gain of the ~~Wiener~~ Wiener filter is set as:

$$|H(t, f)| = \frac{|\hat{P}_x(t, f)|^2 + (1 - \alpha) |\hat{P}_n(t, f)|^2}{|\hat{P}_x(t, f)|^2 + |\hat{P}_n(t, f)|^2} \quad \text{EQ. 3}$$

where  $|H(t, f)|$  is the gain of the ~~Weiner~~ Wiener filter,  $|\hat{P}_x(t, f)|^2$  is the power spectrum of the clean speech estimate,  $|\hat{P}_n(t, f)|^2$  is the power spectrum of the noise estimate, and  $\alpha$  is factor that avoids over estimation of the noise spectra. Values for  $\alpha$  vary from .6 to .95 according to the local SNR computed from the ratio of  $|\hat{P}_x(t, f)|^2$  to  $|\hat{P}_n(t, f)|^2$ .  $t$  and  $f$  are time and frequency indices, respectively. If the Mel-Scale filter bank was used,  $f$  is the indices of the filter bank.

Please replace the paragraph on page 16, line 22 - page 17, line 4 with the following:

Once the filter gain has been determined at step 422, the power spectrum of the noisy frequency domain values produced by magnitude block 305 or Mel-Scale filter bank 306 is applied to the ~~Weiner~~ Wiener filter at step 424 to produce a filtered clean speech power spectrum. Specifically:

$$|\tilde{P}_x(t, f)|^2 \triangleq P_y(t, f) |H(t, f)|^2 \quad \text{EQ. 4}$$

where  $|H(t, f)|$  is the gain of the ~~Weiner-Wiener~~ filter,  $|\tilde{P}_x(t, f)|^2$  is the filtered clean speech power spectrum, and  $|P_y(t, f)|^2$  is the power spectrum of the noisy speech signal.

Please replace the paragraph on page 18, lines 9 - 14 with the following:

Before using this model to enhance speech, it is necessary to add a prior model for speech,  $\Lambda_s$ , and a prior model for noise,  $\Lambda_n$ . Under one embodiment of the present invention, the prior model for speech is a Gaussian mixture ~~model~~ model, and the prior model for noise is a single Gaussian component: